ORM Corner

ORM IN ACT

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From May 2005 to June 2006, Training Air Wing Five's two advanced helicopter-training squadrons suffered a string of eight flight mishaps: three Class Cs, four Class Bs, and one Class A. The end result of the unfortunate series of mishaps was one fatality, two permanent partial-disability injuries, $80,000 in civilian-property damage, $1.5 million in aircraft damage, and two destroyed helicopters.

As everyone involved tried to cope with the grief and shock that accompanied these events, they all asked the same question, "What's going on here?"

Investigators could not find a "smoking gun." They didn't identify any single, common causal factor for all, or even most, of the mishaps. A variety of maneuvers had been conducted, such as pinnacle approach, air taxi, autorotation, and simulated emergencies. The instructor pilots represented a fairly diverse group, considering their experience level and fleet aircraft type. Everyone was motivated to take action and end the streak of crashes, but there wasn't a clear starting point. So many factors could be modified and/or improved; where should they begin?

Enter operational risk management. ORM provided a perfect tool to repair this situation. The "big idea" in ORM involves taking a critical look at an event, figuring out all the ways it can go wrong, and then coming up with controls to keep the wrongs from happening. You don't have to know what "definitely will" go wrong, or even what "probably will" go wrong. All you have to know is what "could" go wrong.

The one thing that made the process cumbersome, in this case, was the scope of the problem. ORM is great for evaluating specific events like a cross-country driving trip, a swim call, or even a social event. The hazards involved in those events are relatively few in number and fairly easy to identify. But, the wing had to deal with multiple mishaps during several different types of flights, under many different circumstances. They would have to scrutinize, from start to finish, the whole contact ("familiarization" for those of you

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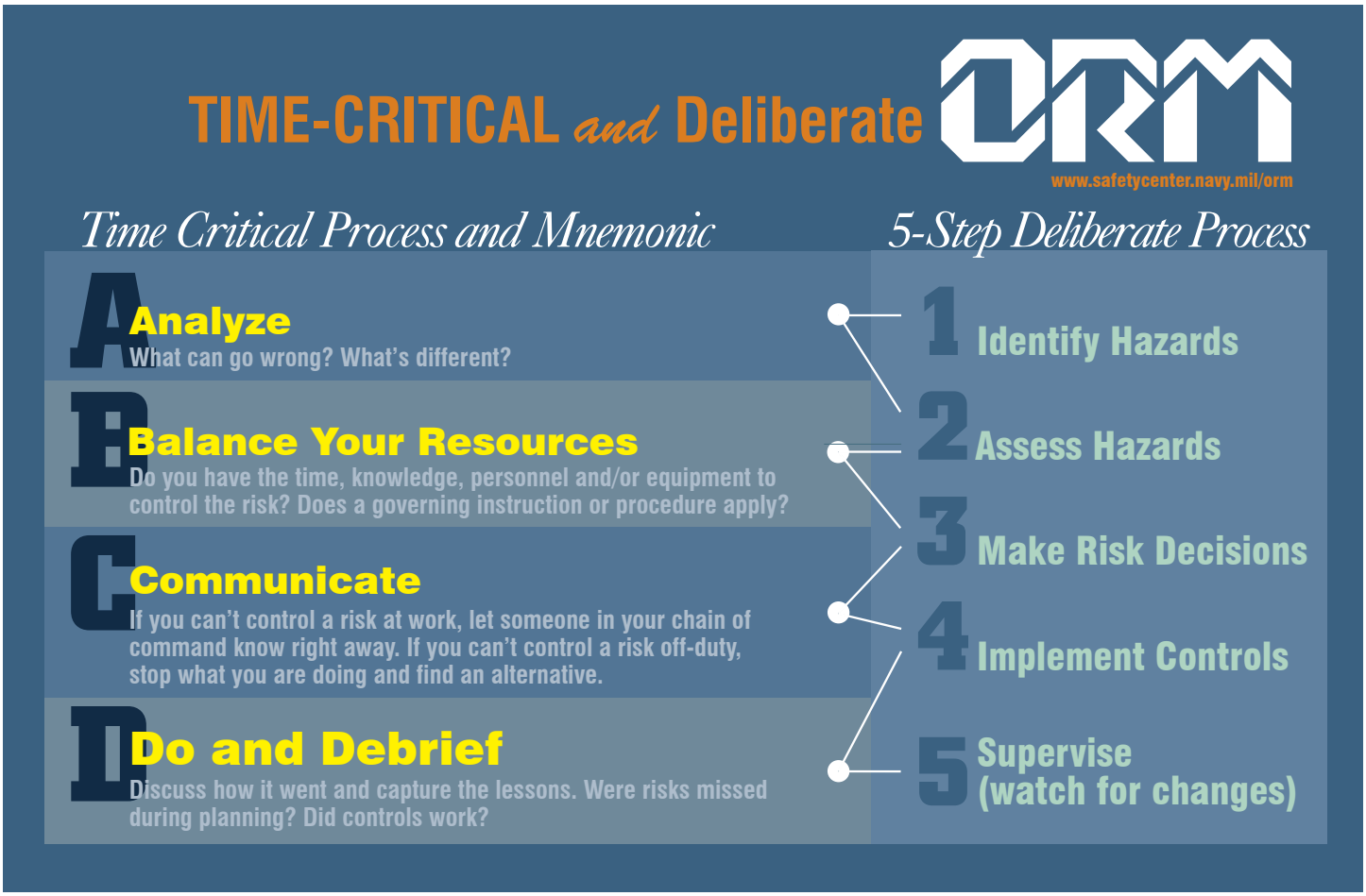
who are old school) phase of helicopter training.

The HT squadrons were tasked to conduct an in-depth ORM review of the entire contact phase of flight training. The commands quickly responded and assembled a crack team to analyze every facet of the typical contact flight, from ground procedures, to facilities, to published training manuals. They decided their main focus, though, would be to dissect 16 individual "high-risk" contact-phase maneuvers. They strove to identify ways to make the maneuvers safer while still providing effective and relevant training to the student aviators.



To help **Identify Hazards,** the panel tried to single out everything that could possibly go wrong. The rash of mishaps provided several different scenarios of ways things could go bad, which afforded a good starting point. To standardize the hazard-identification process, 18 different points were covered for each high-risk maneuver. Here is the checklist they used:

- ORM study (to include mitigation and control-measure review)
- Standardization between squadrons
- Prerequisite review and update
- Parameter review
- Step-by-step procedure review
- Voice-report review
- Course training standards (CTS) review
- Maneuver item file (MIF) review
- Training guidance review
- Facilities capabilities and requirements review
- Aircraft/systems capabilities and requirements review
- Simulator capabilities and requirements review
- Environmental requirements
- Currency and proficiency requirements
- nstructor pilot (IP) training requirements
- Location and weight in student syllabus
- Applicability to fleet and fleet-replacement training
- Crew resource management (CRM)

The team used the ORM study, the first item on the checklist, to **Assess Hazards** by identifying both an initial and a residual risk-assessment code (RAC). They prepared a detailed report of proposed airfield, syllabus, and procedural modifications. They identified each hazard control as critical, noncritical, or long term. Also, they proposed action deadlines for each recommendation. Then they forwarded a report to the commodore, so he could **Make Risk Decisions**. He had to consider the feasibility of implementing each point by taking into consideration cost, ease of implementation, impact, and time-to-train constraints. Once the proposal was approved, it was time to **Implement Controls**. That process continues for the long-term recommendations, but a majority of the improvements already have been instituted. The final step is to **Supervise**. If any changes are observed, new hazards identified, or control measures are not functioning as anticipated, the entire process should begin anew.

Was the process worth all the work? Unequivocally, yes!

The team's evaluation of the typical contact-student flight resulted in a list of an amazing 156 separate improvements. Remember, these two squadrons have conducted helicopter flight training at Whiting Field for more than 30 years. To this point, however, no one had asked if the way they were conducting business was the safest way. This ORM review revealed that, even though the squadrons had a wealth of experience, knowledge, tradition, and history, they could make changes to increase safety without sacrificing mission effectiveness.

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The improvements included 42 student-curriculum changes, four instructor-under-training-curriculum changes, 63 flight-training-instruction changes, 14 wing SOP changes, and 41 repairs, improvements, or procedural changes at homefield and helicopter outlying fields.

Other innovations resulted from the process. The wing generated a completely new instruction called the "Flight Instructor Guide." It provides guidance to instructors concerning how much latitude to give students in allowing them to make and learn from their own mistakes. It also provides a recommended sequence-of-maneuvers for each flight to improve standardization and reduce IP workload. Classroom and computer-aided instruction were modified to improve understanding of helicopter aerodynamics, specifically the factors that contributed to the mishaps, and how to prevent them.

But, the best indicator the ORM process works has been the improved safety record. To date, the two helicopter training squadrons have amassed nearly 36,000 flight hours, 19,000 student Xs, and eight months of incident-free flying.

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